

## INTRODUCTION

The Ouray National Wildlife Refuge was established on 25 May, 1960 by the authority of the Migratory Bird Conservation Act of 1929. Land acquisition was initiated in November 1960 through the use of Duck Stamp funds. The Refuge became operational in late 1961 for **“use as an inviolate sanctuary, or for any other management purpose, for migratory birds.”**

The Refuge lies in the Uintah Basin located in northeastern Utah in Uintah County. The Refuge can be accessed by driving U.S. Highway 40 west 14 miles from the town of Vernal, then turning South on State Highway 88 and traveling 14 miles to the Refuge entrance.

The administrative boundary of the Refuge consists of 11,987 acres. This acreage includes 2,692 acres of leased Tribal lands, 1,153 acres of leased State lands, 3,110 acres removed from public domain and 5,032 acres of fee purchased lands.

The climate for the area is that of a cold desert biome with low precipitation and extremes in temperatures. Annual average precipitation is approximately 7 inches with the majority falling in the spring and fall. Temperature range is from - 43°F to +110°F with an average of 113 frost-free days.

Soils in the upland benches are fine sand or fine sandy loam intermixed with rough, stony broken ground. Bottomland soils are fine sand, sandy loam, clay loam or silty clay. The uplands are separated from the bottom lands by broken and stony bluffs of sandstone and shale. Some of the soils exhibit a fairly high degree of alkalinity, including both calcium and sodium salts.

The Uintah Basin is a subdivision of the Colorado Plateau physiographic province. Refuge habitats include approximately 19 square miles of bottom lands and river surface that occur in six naturally occurring bottoms along the shallowly entrenched Green River. Benchlands are held up by upper strata of the Uinta Formation which formed rounded and sculptured bluffs bordering the river valley. Pleistocene and earlier terrace gravel cover the benchlands. Bottoms and alluvial fans derived from the benches cover the margins of river terraces in the valley bottoms. Elevation ranges from 5,072 feet above sea level atop Leota Bluff to 4,650 feet along the Green River at the South end of Sheppard Bottom.

Refuge habitats are classified into eight different types: riverine, riparian woodlands, wetlands/bottom lands, moist-soil units, croplands and semidesert

shrubland. Riverine habitat consists of approximately of 1,180 acres with minimal aquatic vegetation. Riparian woodlands occur along and adjacent to the 16 miles of the Green River that flow through the Refuge. This habitat totals approximately 1,282 acres and consists primarily of Fremont's cottonwood with an under story of peach-leaf willow, narrow-leaf willow, whiplash willow, skunkbush sumac, silver buffaloberry and some western wheatgrass. Wetlands/bottom lands habitat is comprised of six flooded bottoms totaling 3,110 acres. In down stream order they are, Johnson Bottom, Leota, Wyasket Pond, Wyasket Lake, Sheppard and Woods. Moist soil units consist of five independently controlled impoundments which total 50 acres. Croplands comprise 150 acres and are farmed by a cooperative farmer on a rotational basis with alfalfa, barley and grain sorghum. Semidesert shrubland is 2,731 acres and consists of plants species such as greasewood, big sagebrush, black sagebrush, rubber and low rabbitbrush. Grasslands make-up 1,520 acres and consists of alkali sacaton, inland saltgrass, western wheat grass and Great Basin wildrye. Clay Bluffs total 1,935 acres on the Refuge but little is known on the role they play as habitat for wildlife.

As of 1998, the Refuge has taken a new and innovative look at the role of the Refuge in the Upper Colorado ecosystem. Recently adopted management strategies take into account new biological information and insight into the importance of western riparian and floodplain systems. We have come to the realization that Refuge flood plains can not easily be transformed into "Prairie Pot Hole" type waterfowl production areas. Instead, emphasis is given to the riparian and wetland habitats and their function as a migrational stop-over for all migratory birds.

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NTR

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Inside Back Cover



*Abronia elliptica*, fragrant white sandverbena  
One of the many spring wildflowers found  
this year. (DP)

## A. **HIGHLIGHTS**

- \* Tamarisk Beetles Released on Refuge
- \* Ouray Ecosystem Restoration Study Continues
- \* Green River Flow Exceeds 20,000 cfs
- \* Thunder Ranch Easement Levee Fails



One of the resident burrowing owls caught on camera by hatchery staff.

## B. CLIMATIC CONDITIONS

Drought conditions continued in 2005 with 5.95 inches of total precipitation recorded at the Refuge Headquarter's National Weather Service substation. The highest and lowest temperatures recorded in 2005 were 105<sup>0</sup> F and -7<sup>0</sup> F.

MONTH	Max Temp (°F)	Min Temp	Avg Max Temp (°F)	Avg Min Temp (°F)	Precip (inches)	Snow (inches)
January	43	2	33.2	18.9	.90	9.5 .5
February	52	15	42.6	22.4	.32	.5
March	69	15	55.9	27.3	.29	0
April	79	20	66.4	33.7	.61	0
May	93	34	76.0	34.0	.48	0
June	98	41	82.2	49 .1	.73	0
July	105	48	96.7	57.0	.00	0
August	95	44	88.7	54.3	.56	0
September	90	36	79.3	45.0	.99	0
October	83	28	68.5	36.7	.83	0
November	65	11 3	51.2	23.1	.23	0
December	58	-7	38.1	11.1	.01	0

TOTALS					5.95	9.5
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## C. LAND ACQUISITION

### 2. Easements

The Colorado River Wildlife Management Area was established in 1998. It is recognized as one of the 546 Refuges in the National Wildlife Refuge System. It consists primarily of conservation easements on the Green, Gunnison, and Colorado Rivers in both Utah and Colorado. One parcel in Grand Jct. Colorado (Grand Jct. Pipe) is owned in fee. No additional easements were acquired in 2005. This Refuge consists of 1,332 acres on 16 parcels of land. This total remains grossly short of the original objective of 50 easements and 10,000 acres which was identified as needed to recover the fish by the Colorado River Recovery Program.

The Thunder Ranch easement located in Jensen, Utah developed a leak in a levee constructed by the Bureau of Reclamation. The leak subsequently lead to a complete washout of the levee which flooded an adjacent privately owned field. The land owner, John Thorton, requested compensation for the damages from the Bureau of Reclamation. The Bureau agreed to rebuild the levee and place a split rail fence to prevent cattle access, but no monetary compensation was made.



## Thunder ranch Levee Washout (DA)

### **D. PLANNING**

#### **1. Comprehensive Conservation Plan**

The Ouray Comprehensive Conservation Plan (CCP) was completed and signed in July of 2000. This document is now used and referred to with some regularity by Ouray Refuge staff. The challenge in implementing the CCP lies in acquiring the funds needed to accomplish the identified goals.

Since the completion of the CCP, the Refuge has accomplished numerous objectives identified in the CCP. The most notable are: comprehensive vegetation mapping, biological inventories of small mammals, reptiles and amphibians, selenium management through levee removal, rehabilitation of water control structures within Sheppard and Leota Bottoms, and improved invasive weed control.

### **E. ADMINISTRATION**

#### **1. Personnel**

Dan Alonso, GS-13, PFT.....Project Leader, EOD 3/98

Dan Schaad, GS-12, PFT.....Deputy Refuge Manager, EOD 10/92

Diane Penttila, GS-11, PFT....Wildlife Biologist, EOD 11/02

Cindy Severson, GS-7, PFT.....Administrative Support Assistant, EOD 9/04

Steve Breakfield, WG-10, PFT.....Maintenance Mechanic, EOD 8/97

Tim Driscoll, WG-7, PFT....Maintenance Worker, EOD 5/05

Dan Brown, GS-4, TFT.....STEP appointment, EOD 5/1



Sarah Harris, GS-4, TFT.....Biological Technician, EOD 5/1

Craig Ogden, GS-4, TFT.....STEP appointment, EOD 5/5

Earl VanWie, GS-3, TFT....Biological Science Aid, EOD 5/2



Weed Crew: Geoffrey Geier - SCA  
volunteer, Craig Ogden, Dan Brown,  
Sarah Harris

Maintenance Worker Tim Driscoll was lateraled to Ouray NWR from the National Bison Range in May 2005.

## 2. Youth Programs

In 2005, Youth Conservation Corp (YCC) consisted of enrollees Jesse Greenwood and Brian Miller, both from Vernal. They worked on various maintenance and biological projects, but most efforts centered on providing assistance with invasive plant control. They also assisted with replacement of a portion of the of west boundary fence.



YCC Enrollees Jesse Greenwood and Brian Miller

### 3. Other Manpower Programs

The Refuge hired a volunteer through the Student Conservation Association (SCA). Geoffrey Geier from Nashville, TN worked as an SCA intern from May 12 through August 2 for a total of 408 hours. Most of his duties were associated with the weed program.

### 4. Volunteer Program

The 2005 Refuge Volunteer Program consisted of volunteers from numerous organization and individuals. Some of these were the Student Conservation Association, Ducks Unlimited, Utah Dedicated Hunters, St. James Catholic Church Youth Group, Boy Scouts of America, The Audubon Society, and numerous individuals assisting with the Refuge annual open house and Christmas Bird Count.

### 5. Funding

<b>Project</b>	<b>FY02</b>	<b>FY03</b>	<b>FY04</b>	<b>FY05</b>
1261 (Operations)	\$462	\$461	\$441	\$436
1262 (Main)				
1262 (Annual Maint.)	72.8	96.6	72.6	71.4
1262 (Heavy Equip)	88	31	15	0
1262 (Equip Rental)				12

1262 (Defer. Maint.)	58	0	257	126
1262 (Small Equip)				31
1263 (EVS)				
1264 (LE)				
2821 (VFE)				
RONs	75	0	0	0
8610 (Qtrs)	10	17.1	3.1	4.5
YCC	3.6	5.3	4.2	3.9
Volunteers	.8	.5	.5	.5
Volunteer Weeds				7.5
CWD(1261-CWDM)				9
1231 (Mig. Bird)	0	0	0	0
1946-0038 (CRRP)	50	50	50	50
9131/9263 Fire	9.0	6.8	9.4	2.1
9263 (PROJ/H570)				2.8
9141 (Wildfire)	0	0	13.6	0

## 6. Safety

Safety meetings, tail-gate sessions and related refreshers/certifications conducted in 2005 included fire refresher training/fire shelter deployment exercises, physical fitness tests, ATV, heavy equipment and fire engine operations, purchase and proper use of PPE and precautions taken against West Nile Virus, other wildlife diseases, etc. DRM Schaad served as the station's collateral-duty safety officer.

A Safety and Occupational/Environmental Compliance Review was conducted at the Ouray NWR by RO safety staff Terry Black and Jim Behrman on March 24.

## F. **HABITAT MANAGEMENT**

### 1. **General**

Refuge habitats consist of the following:

#### **Refuge habitats and acreage.**

<b><u>Vegetation/Land Use Type</u></b>	<b><u>Acres</u></b>
Riverine	1,180
Riparian (Classified Wetlands)	4,392
Uplands	
Semidesert Shrubland	2,731
Grassland	1,520
Clay Bluffs	1,935
Agriculture/Farm Fields	150
Ouray National Fish Hatchery	24 <sup>1</sup>
Moist-soil Units	50
Headquarters, Shop, and Residences	5
Total	11,987

<sup>1</sup>Figure changed from 1999 after consulting original Ouray National Fish Hatchery EA which identifies the acreage as 24.

### 2. **Wetlands**

Refuge wetlands are located within five naturally occurring bottom lands adjacent to the Green River. In accordance with the station CCP we are exploring and experimenting with restoring the hydrologic connection between the river and floodplain. Water control structures are in the process of being replaced or constructed to facilitate a wet/dry rotational scheme and enhance wetland habitat and mimic

natural processes. Several interior dikes and portions of protective levees along the river have been removed in an effort to accomplish these objectives.

At the beginning of 2005, all impoundments were dry with the exception of Leota L-1, 2, 3, 4, 5, 6, 7, 8, 9.

The first open water (due to spring thaw) appeared in Leota Bottom in late February. By March 3, all impoundments were 100% open..

Pelican Lake water was used in Sheppard Bottom impoundments and for cropland management in 2005. Green River water was received through gravity flow inlets and levee removal sites in 2005 (see bottom-land summary notes below).

**The Green River peak flow for 2005 occurred on May 26 at 20,100 cfs, recorded at the Jensen gauging station.** Refuge estimates are a flow of over 30,000 cfs from backflow from the rivers downstream of the Refuge. See following pages of aerial views of flooding that occurred in Leota and Johnson Bottoms.

Bottom-land Water Use:

Woods Bottom: Green River water was diverted into Woods Main through the inlet and outlet structures from April 19 through May 25. Most water was diverted through the outlet structure as the inlet canal has siltation problems. Green River water also flowed through natural channels into Woods Main. This normally occurs at flows around 13,000 cfs. Woods Backside also received river water through the levee removal site, which is designed to flood at approximately 13,000 cfs.

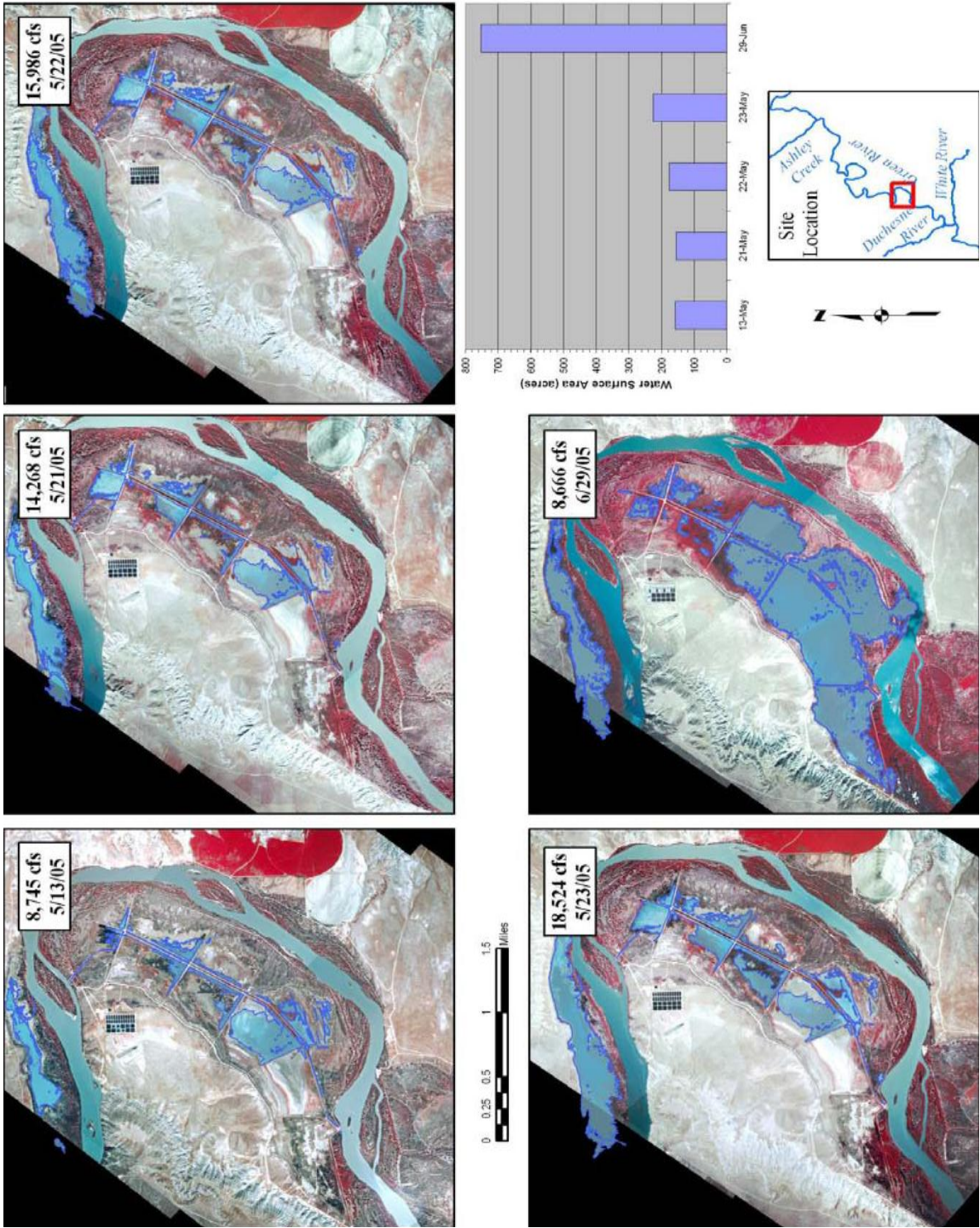
Sheppard Bottom: Sheppard S-1, 2, 3, 4 received Pelican Lake water February 10 through June 24, August 1 through August 9, and September 9 through November 6 (2,149 AF). Green River water was also diverted through the inlet structure May 12 through July 10. S5 (the far west side) flooded primarily through a blown-out earthen plug on the drain canal beginning on May 23. Green River water continued to flow into S5 via this canal through mid-June.

Wyasket Bottom: There was sheet water present in Wyasket Lake in early March due to snow melt. There was no Green River water actively diverted to Wyasket Bottom, however some limited flooding occurred through natural channels into the south side of Wyasket Lake.

Leota Bottom: Green River water was diverted through the inlet May 12 through May 27, which affected the upper half of the complex. There was no water diverted through the Leota drain/fish kettle in 2005. A limited amount of Green River water was diverted directly into L10 beginning May 24. Green River water was documented coming in through the L7 and L7A levee removal sites on May 24 and

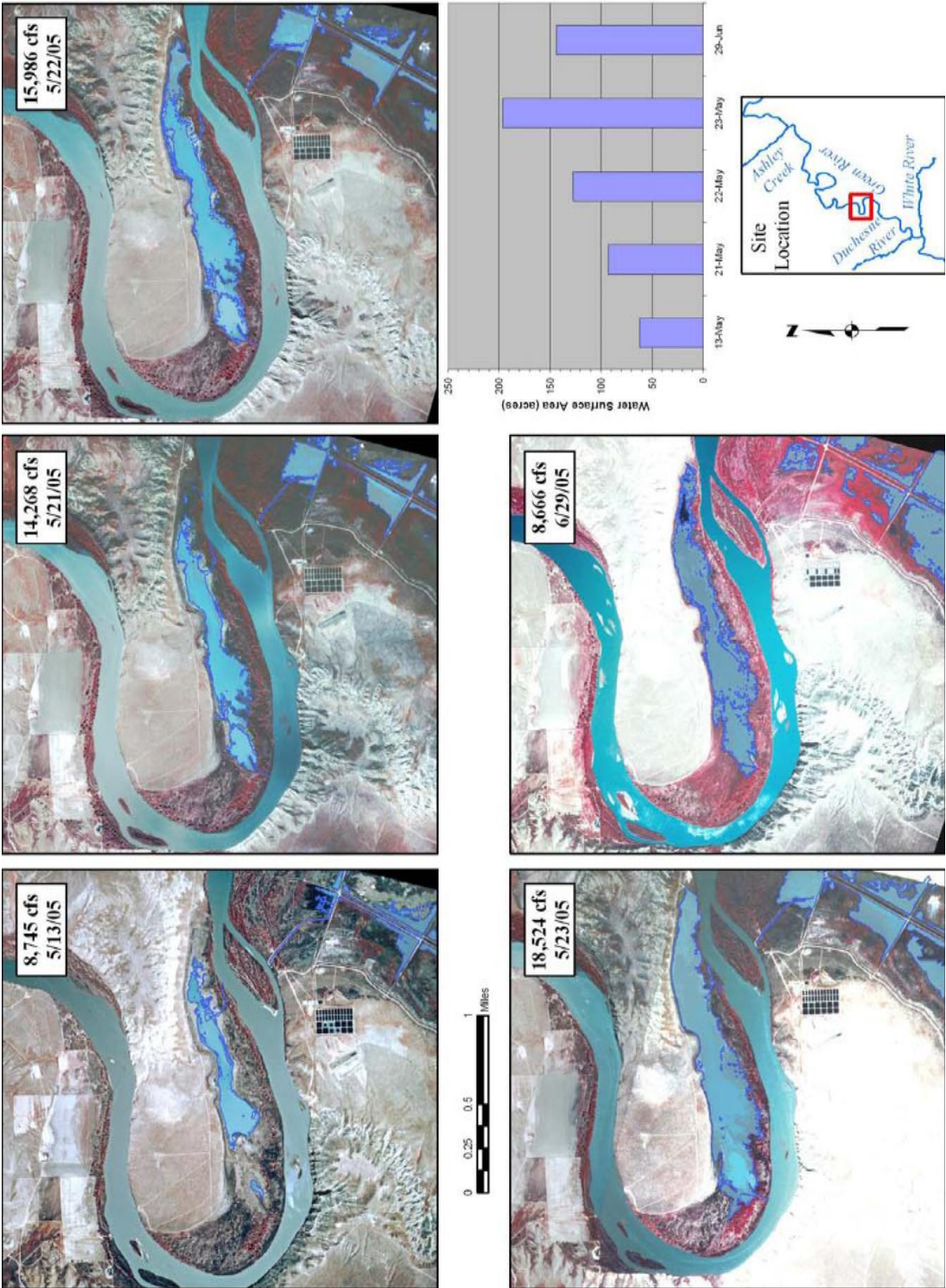


Leota Bottom Flooding





Johnson Bottom Flooding





continued flowing in until at least June 7. There was documented outflow at L7A as late as June 20. See aerial photos on previous pages.

Johnson Bottom: Johnson Bottom was dry coming into 2005. Green River water was primarily diverted to this bottomland through the drain/fish kettle structure. Green River was also observed flowing through the inlet structure on May 12. Green River water also flowed in through the levee removal site near the southeast corner of this bottomland. See aerial photos on previous page. This LRS was designed to flood at 13,000 cfs but due to modifications by the Bureau of Reclamation this now occurs at higher flows.

At years end, water was present in all Leota units, all Sheppard units, and Johnson Bottom. All other units were dry. All wetlands were 100% ice-covered by November 30.

The Ouray National Fish Hatchery used 705 acre-feet of Green River water for their operations under Refuge water rights.

More detailed information on station water use and wetland management is captured in the 2005 Water Use Report and 2005 Annual Habitat Work Plan.

### 3. Forests

Cottonwood stands adjacent to the river are considered the only forested areas occurring on the Refuge. The understory is composed of woody vegetation such as willows and skunkbush sumac with some interspersions of Russian-olive and tamarisk. Herbaceous cover includes wheatgrass, wild rye, and other grasses and forbs but suffers from infestations of perennial pepperweed and Russian knapweed. Spring runoff and regulated flows from Flaming Gorge Dam, which are highly variable, determine the amount of disturbance in this habitat.



Natural cottonwood regeneration  
occurring along the east side of L-7.  
(DP)

#### 4. Croplands

Ouray's cooperative cropland management program utilizes approximately 150 acres and involves one cooperator. The cooperator handles all farming operations including planting, cultivating, harvesting crops and operating/maintaining irrigation equipment. Refuge expenses include the cost of Pelican Lake water, parts for Refuge irrigation equipment and staff time to administer the program. Pelican Lake water was used to irrigate cropland areas intermittently from April 21 through September 19, 2005 (384 acre-feet).

Generally, the cooperator's share consists of two or three cuttings of alfalfa/grass used for hay while the Refuge's share is a small grain such as barley. In 2005, the cooperator's share consisted of 110 acres of alfalfa/grass (73%). The Refuge share was 22 acres of barley (Field B) plus an additional 19 acres of alfalfa/grass in Field D (27%).

Field D was not counted towards the cooperator's share because the irrigation equipment used on this field is supplied by the cooperator. Whenever possible, a third cutting of alfalfa/grass is allowed on at least half the cooperator's share since migratory bird use appears to be higher in fields having lower regrowth.

The Refuge's share of barley is generally left standing for migratory birds such as sandhill cranes, mallards and Canada geese . Mule deer, elk and ring-necked pheasants make use of these fields as well. The proximity of these fields to the auto-tour route and concentrations of wildlife provides Refuge visitors excellent viewing opportunities.

We are continuing to monitor the efficiency of the farming program by requiring the cooperator to provide the station with an annual report summarizing economic costs and benefits associated with each year of production.

5. Grasslands

Grasslands are located on the benchland areas west of the river and are highly dependent on annual precipitation. According to the vegetation mapping effort, galleta grass is the most widespread grassland type on the Refuge. Other associated grass and dwarf shrub species include needle-and-thread, Indian ricegrass, purple threeawn, Russian thistle, broom snakeweed, prickly pear, cottonthorn horsebrush and shadscale. The largest threat to the Refuge grasslands is cheatgrass. Unfortunately, cheatgrass is very difficult to control.

6. Other Habitats

The old fish hatchery site is in the process of being restored to native vegetation. The most difficult aspect of this is the invasive weeds that have taken over the disturbed site. Filling in the old ponds and leveling the site to a more natural grade was started in 2003 and was completed in 2005. Most of the area was seeded into oats on March 24 to provide ground cover to hopefully reduce the amount of weed invasion. A canal, that feeds water from Pelican Lake to Sheppard Bottom, is in one corner of the site and was used as a water source for irrigation. A hose line was laid down from the canal the length of the seeded area with garden hose attachments every 50 ft to a sprinkler. The whole irrigation set-up was moved as needed to irrigate the entire field. Germination of the oat seed was good, better than expected considering the thin layer of organic soil. As expected, weeds were very prevalent, mainly perennial pepperweed, Russian knapweed, and kochia. The pepperweed and knapweed were spot treated within the seeded area as well as areas immediately adjacent to the site (see

Figure 1). The kochia was mowed on August 10 except where thick areas of knapweed occurred so that the knapweed could be treated.

Plans for 2006 are to re-seed again with oats and hopefully some native grass seed as well. This seeding will be done using a no-till drill to avoid disturbance as much as possible. Weed control will continue.

#### Old Hatchery Restoration Site - 2005

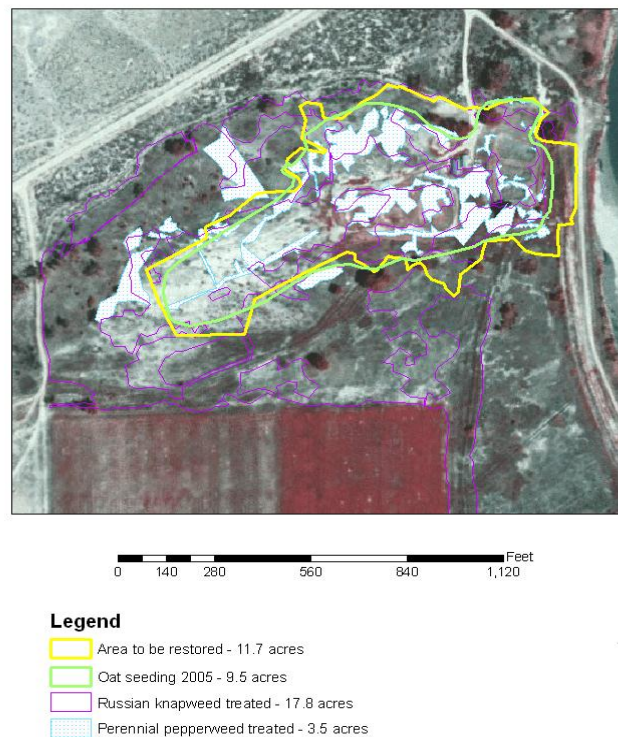


Figure 1. Work completed at Old Hatchery Site

#### 9. Fire Management

Prescribed fire is a tool used to reduce hazardous fuels and improve habitat conditions primarily within Refuge impoundments. Our goal is to burn wetland impoundments every 3-5 five years, depending on

vegetative conditions, while trying to exclude fire from riparian areas. Hazardous fuels reduction efforts within wetland impoundments adjacent to riparian areas are identified as the highest priority. This is done in an attempt to reduce the potential for catastrophic wildfires occurring in sensitive cottonwood riparian habitat.

Prescribed burns and canal maintenance-type burns were conducted in Leota Bottom and there were no wildfires on the Ouray NWR in 2005.

Canal maintenance burns were completed within the Leota and Parker drain canals in March and April, 2005. These burns provided secondary benefits by establishing black lines prior to the Leota impoundment prescribed burns conducted in April.

Leota impoundments L-2, L-4 and L-6 (#F987) were prescribed burned on April 5, 2005. L-2 was burned first, ignition time was around 1100 and the burn completed by 1230. L-4 was burned next, ignition time was around 1245 and completed by 1330. L-6 ignition time was around 1400 and lasted until 1500. Mop up and patrol was conducted with BLM personnel until 1600 when they were released. FWS staff monitored the site until 1730. All burns were conducted within prescription and objectives met. The clearing index was 650, temperatures ranged from 40 - 45 degrees (F), RH values from 48 - 67% and winds calm (0-1 mph). Assistance was provided by the BLM (Vernal Field Office) including three engines and eight personnel. FWS resources included one engine and three personnel from the Ouray NWR.



Prescribed burns. L-2 above and L-4 below.  
(BLM)





One of the many fire whirls created.  
(BLM)

Leota impoundment L-10 (#F987) was burned on April 7, 2005. Ignition was around 0915 and the burn completed (including mop-up) by 1215. The burn was conducted within prescription and objectives were met. The clearing index was >1000, temperatures ranged from 45 - 48 degrees (F), RH values from 26 - 54%, and winds SW (0 – 5 mph). Assistance was provided by Vernal BLM including three engines and seven personnel. FWS resources on this burn were the same as listed above.

These projects were very successful fuels reduction/wildlife habitat enhancement burns, made possible due to a willingness by refuge staff to conduct prescribed burns with limited fire staff/funding and assistance provided by the Interagency fire community.

Ouray NWR has an interagency agreement with the U.S. Forest Service, Bureau of Land Management, Bureau of Indian Affairs, National Park Service and Utah Division of Forestry, Fire and State Lands and follows guidelines outlined in the Uintah Basin Interagency Annual Operating Plan (AOP). The purpose of the AOP is to document agreement and commitment to fire protection assistance and cooperation. These activities are primarily coordinated through the Uintah Basin Interagency Fire Center located in Vernal, Utah. As a



participating agency, the Ouray NWR contributed \$2,140 for fire center operations costs in FY-05.

## 10. Pest Control

### Invasive Weeds

The five primary non-native plant species of concern are: perennial pepperweed, saltcedar, Canada thistle, Russian olive and Russian knapweed. Russian thistle and kochia species pose a problem along roads as vehicle traffic brings in more seeds or picks up seeds on the Refuge. Refuge staff have also found bull thistle and are on the lookout for a plethora of other species coming down the river.

We currently utilize mechanical , chemical, cultural, and biological control techniques in an effort to gain control of these nuisance species. Prior to 2005, the only biological control agent currently available to us was a soil nematode *Subanguina picridus* for Russian knapweed. This soil nematode has shown very poor success and we have discontinued its use. In 2005, Refuge staff was able to collect beetle larvae from a Utah State University research site in Delta, Utah for control of saltcedar. The beetle, *Diorhabda elongata deserticola*, was originally collected from Kazakhstan. Delta was the only location that beetles from Kazakhstan were located. Beetles from Fukang, China were located in other locations above the 38<sup>th</sup> parallel, the closest to Ouray Refuge being in Pueblo, Colorado. Beetles from Crete were tested in Texas and it has now been discovered that it is actually a different species then the China and Kazakhstan beetles and thus the hybrids produced from the two species do not produce viable eggs. Fortunately, the Kazakhstan and China beetles are the same species and produce viable young.

We continue to work closely with the Uintah County Extension Office, Uintah County Weed Department (UCWD), other land management agencies and the Uinta Basin Cooperative Weed Management Area (UBCWMA) in an effort to improve communications and control techniques. We are also stepping up efforts to inform the public about the non-native plant dilemma.

In conjunction with UBCWMA, as part of an Area-wide weed inventory that has recently been initiated, the Refuge started a Refuge-wide weed inventory. The standards were based on work completed at nearby Dinosaur National Monument and Dr. Steve Dewey from



Utah State University. Much has already been invested in weed control on the Refuge. But the effort and funds can be most efficiently spent if the exact size and locations of each species of weed is known. In addition, funding and personnel needs can be better expressed by having the knowledge of how big the weed issue is. By completing a Refuge-wide inventory of weeds, the actual weed problem will be known. The vegetation mapping project from 2000 and 2001 did map many of the weeds on the Refuge, but only those weeds that were the dominant species. Therefore, weeds that were not dominant did not show up on the map and fortunately, in many cases the weeds were not the dominant species. Considerable effort was made in 2004 learning the standards and methods to conduct the weed inventory and to setup our Trimble GPS unit. The inventory was started in the north end of the Refuge and worked south staying on the west side of the Green River. A total of 3,457 acres were searched in 2004. In 2005, an additional Trimble unit was purchased and 4 seasonals and interns were trained in weed inventory mapping. Over 6,100 acres was inventoried in 2005 (see Figure 2 below), leaving about 3,900 acres to complete.

## Area Weed Inventoried 2004 & 2005

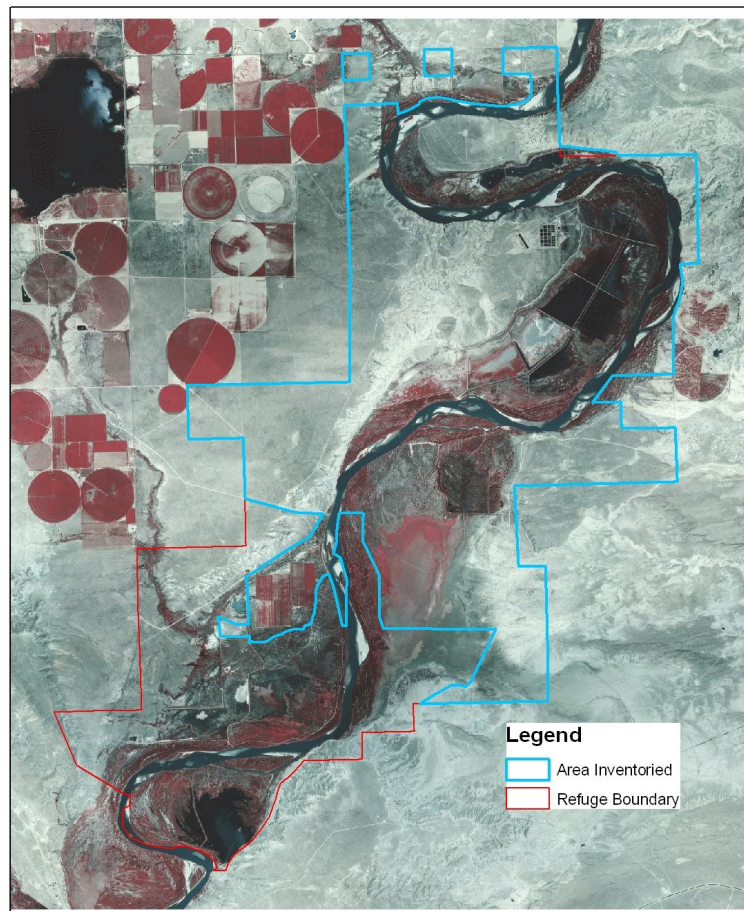


Figure 2. Area inventoried completed for weeds in 2004 and 2005.

Considerable effort was put into control of all the priority weeds that occur on the Refuge in 2005. Table 1 at the end of this section contains the Pesticide Use Report for 2005 with chemical totals and costs. The following summarizes this year's weed control activities: Only about 2 acres of roadsides and office/shop area were chemically treated. More emphasis was placed on finding something that worked on the chemical resistant kochia. A very early spring treatment of Plateau was tried with hopes that it would work being much friendlier to grasses than other methods. Unfortunately it was not effective. Habitat and Roundup treatments were also used. An additional 30.5 acres of roads and dikes that contained weeds were mowed.

Many of the areas of Canada thistle that were treated in 2004 were under water in 2005. So only 0.9 acres of Canada thistle were treated in 2005. While Plateau is the preferred chemical to use for treatment because it is gentle on grasses, much of the Canada thistle treated was near water and Habitat had to be used. Treatments were conducted along the auto tour route in Sheppard Bottom and on small patches occurring in Leota Bottom.

Intensive weed control continued in Wyasket Pond in an effort to restore the unit to its more historic native plant community. For years it was artificially flooded which eventually resulted in a thick mat of cattail. In 2004, it was burned and the extent of the perennial pepperweed and Russian knapweed infestation was evident. Aggressive weed control started in 2004 and continued in 2005 (see Figure 3). Over 145 acres of perennial pepperweed were boom sprayed or spot sprayed with Escort. This is a large increase in area compared to 2004, but the effort in 2004 really knocked back the pepperweed allowing us to cover more area with less effort. Over 30 acres of Russian knapweed was treated post-frost with Plateau by boom spraying and spot spraying. In 2004, this area was treated in early summer in an attempt to treat both perennial pepperweed and Russian knapweed at the same time but it proved to be an unsuccessful treatment for Russian knapweed so in 2005 that area was treated twice, once for perennial pepperweed and once for knapweed. Thirty acres of 'touch-up' saltcedar control was completed. Work done in 2004 was quite successful.

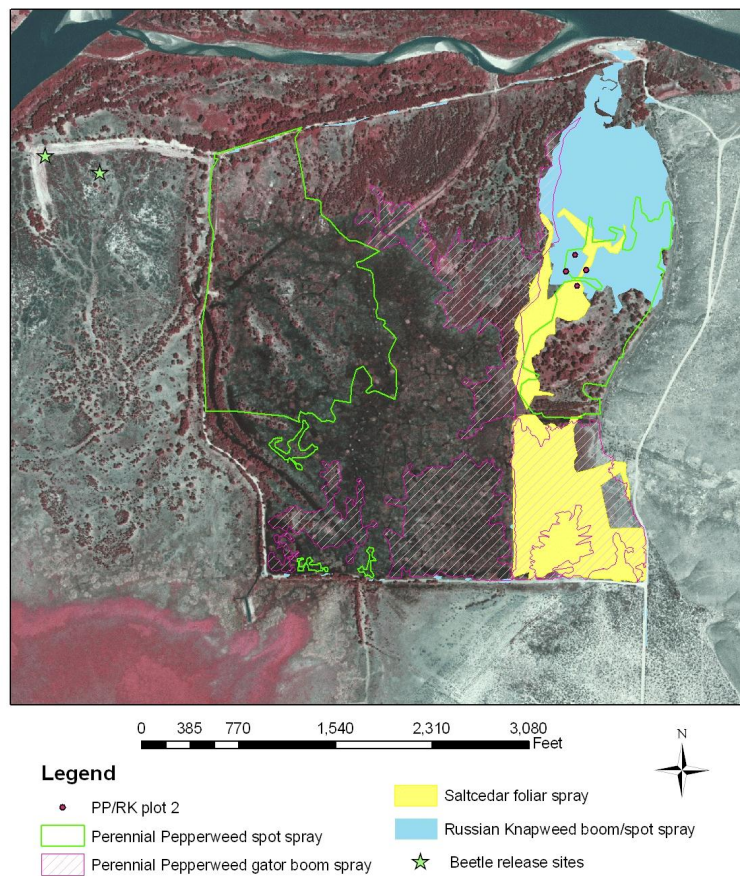


Figure 3. Weeds treated and test plots in Wyasket Pond.

Another large scale restoration project involves the old hatchery site (see Section F-2). Three and a half acres of the 9.8 acres that was seeded and adjoining areas was spot sprayed for perennial pepperweed with Escort. Some Russian knapweed within the seeded area was also treated and many large areas adjoining the seeded area were treated post-frost (see Figure 1 in Section F-2).

Since the Parker Tracts were kept dry in 2005, treating perennial pepperweed became a priority, mostly along the dikes but some within the units as well. Another priority area was the north and south draws along the entrance road to the Refuge. L4 was burned in spring of 2005 and that provides a good opportunity to do weed control. A new plot was established in L4 to test boom spraying with the gator and two large areas were completed using that method. Burch Wetblade

mowing continued in two areas, though one area was conducted quite late due to wet conditions.

A total of four test plots were monitored in 2005. Plot 1 was mowed and then treated with the Burch Wetblade mower after the flower buds form again. It was first treated in 2004. In 2005 (before retreatment), perennial pepperweed had decreased by 65%. Kochia also increased but so did saltgrass. It is hoped that the continued mowing will allow the saltgrass to overtake the kochia. Plot 2 is a perennial pepperweed/Russian knapweed mix. In 2004, it was boom sprayed with Plateau in an attempt to treat both the pepperweed and knapweed at the same time. It was very effective for pepperweed with a 94% decrease in pepperweed. In 2005 this plot was spot treated for pepperweed using Escort. Plot 3 is a Burch Wetblade mowed only. Treatments in this unit tend to be late in the season for pepperweed because its closeness to a wetland, access can be difficult. In 2005, after one treatment in 2004, perennial pepperweed decreased by 32%. Once again grasses and kochia increased. Plot 3 is a difficult unit to understand as there are additional variables mixed in such as extreme changes in soil moisture during the year and from year to year and the difficulty in gaining access. It is showing success, just not as high as hoped. But wetblade mowing is a much cheaper method of treatment than boom or spot spraying. Plot 4 was setup in 2005 so was only monitored pre-treatment.

Saltcedar continued to be our biggest investment in weed control (see Table 1, Pesticide Use Report). The reasons for this larger investment is that the Refuge has a huge number of acres of saltcedar and have so many different methods of treatment. In 2003 and 2004, large new areas of saltcedar were tackled each year. In 2005, only three new areas were initiated; the rest of the acres treated were just re-treatments of past treatments. Two of the new areas treated in 2005 were mowed either late in the winter or early spring with intentions of roller applying the new regrowth later. The first area was what remained in S4 to be treated that had not been treated in 2004 and totaled 18 acres. The second area was a contract job with an individual that has the equipment to mow larger growth saltcedar. He mowed over 25 acres in the floodplain along the river in Sheppard Bottom. Both these mowed areas flooded during the spring, S4 using Pelican Lake water and the other with high flows from the river. This assisted with saltcedar control substantially, especially in S4 where the water levels were consistently higher. During drier times in August, S4 was spot sprayed for any regrowth from all



treatments that have occurred over the last three years. The 70 acre unit which once had considerable stands of saltcedar only need less than 7.5 acres of spot treatment. In mid-August the mowed area in Sheppard Bottom was roller application treated and spot sprayed. Regrowth was quite stunted. The third new area



Contract job to mow saltcedar in Sheppard Bottom with an ASV with a Fecon mower. (DA)



Left of the boundary fence is the same area that was mowed in the spring. High river flows conveniently flooded it helping to further stress the saltcedar. (DS)

treated in 2005 were scattered areas within L4 and the adjoining canal which had been burned during the spring. Some of the saltcedar had burned quite hot and was significantly stunted making it much easier to treat. As time allowed, saltcedar was spot treated in L4 totaling 21.9 acres.

An eagle scout project conducted in February and March involved hand cutting saltcedar in a canal that is too tall to foliar spray and not accessible with equipment for other treatment types. The scouts hand cut the saltcedar and treated the stumps clearing 2.75 acres. Timing of the treatments was not the best as spring is the worst time to conduct cut stump treatments so re-treatment was planned and completed.

Saltcedar control continued in S1a which had a large area mowed in 2003. The thickness of some of the saltcedar has made treatment difficult. Work continued in S-10 which was applications were always 1% Arsenal + 1% Roundup. But with the success seen using ultra-low volume rates with the roller applicator also mowed in 2003; only scattered spot treatments were needed.

Large areas of saltcedar in Wyasket Pond and Johnson Bottom were mowed and the stumps treated immediately (cut stump treatments) in 2004. Those areas showed very good success even in spite of how thick some of the stands were. Saltcedar in Wyasket Pond was thinner and only needed scattered retreatment in 2005. Johnson Bottom was extremely thick and it was known that many stumps were missed during treatment. Re-treatment was necessary but was not as intensive as expected.

Thirteen test plots of saltcedar were monitored during 2005 testing a large variety of treatment methods. Plots 7 and 8 tested ultra-light volumes of chemical using the roller applicator. Plot 7 used 0.125% Arsenal and had a 77% decrease in live stem counts overall after one treatment. Plot 8 used 0.5% Arsenal + 0.5% Roundup with a 91% decrease of live saltcedar stems after one treatment. Quadrat results

within both plots varied widely with the thickest quadrats showing the least success. The bending of the saltcedar as it is treated seems to be inhibiting treatment on other stems. In 2005, two passes will be made in opposite directions of each other to see if that problem is solved. Perennial pepperweed and Russian knapweed also decreased in both plots but kochia increased significantly in plot 7 and stayed about the same in plot 8. Saltgrass increased overall but in some quadrats there was a large kill of saltgrass so there are still issues with dripping or splashing of chemical.

Plots 9 - 12 were low volume test plots of foliar spray. In the past foliar r, foliar test plots were set up. Plot 9 was 1% Arsenal, plot 10 was 0.5% Arsenal, plot 11 was the standard 1% Arsenal + 1% Roundup and plot 12 was 0.125% Arsenal. All plots had 100% control of saltcedar. Plots 10 and 11 which used the most chemical had large dead areas of understory. Plot 12 had the least amount of dead understory. This demonstrates that foliar treatment is very toxic to understory whether it is caused by drift or from uptake from the saltcedar plant somehow. As a result of these test plots the standard mix for foliar application for saltcedar was changed from 1% Arsenal + 1% Roundup to 0.25% Arsenal which is actually double of the volume of plot 12 but half the amount of plot 10. The lowest volume may just be too low if treatment is rushed (which frequently happens when treating day after day).

Plots 13 - 16 were cut stump treatments using a variety of chemical mixes. Plot 13 was the standard treatment of 1% Arsenal + 1% Roundup, plot 14 was 12 oz Arsenal/gallon of water, plot 15 was Garlon 4 straight, and plot 16 was 12 oz Habitat/gallon of water. The standard treatment of 1% Arsenal + 1% Roundup had been what was used in the past but did not seem as successful as hoped. The other three mixtures were label recommendations. Results were as hoped. The standard Arsenal + Roundup was 91% effective while plot 14 was 95% effective, plot 15 was 100% effective, and plot 16 was 96% effective. The cost of treating plots 14 - 16 were significantly higher than using the standard 1% Arsenal + 1% Roundup with only small increases of effectiveness. Therefore, it is much more cost effective to stick with the standard treatment. The real key to success of cut stump treatment is finding all the stumps after being cut and that is the same problem no matter what chemical mixture is being used.



Plots 17 and 18 were testing basal bark treatment using Garlon 4 which was a new treatment method for the Refuge. The advantages to the basal bark treatment is that it is allowed in close proximity to water up to a certain total active ingredient percentage of the wetland, can be used on the largest saltcedar that is unreasonable to treat with foliar treatments or too big for other treatment types, and can be done in areas that is difficult for equipment to access such as mowers. Plot 17 was using the label recommended rate of 5% Garlon 4 and plot 18 was 2.5% Garlon 4. Unfortunately, plot 17 was inadvertently mowed after premonitoring and treatment. An attempt was made to count re-growth based on clumps of plants rather than stems and it was estimated that this treatment was about 74% effective. Understory was also impacted. Perennial pepperweed and cattail and bulrush all decreased significantly. Grass decreased in areas where it was very thick, but in areas where it was originally less of an understory component it increased. Plot 18 was 35% effective for complete plant kill and had an 89% decrease in good re-growth, meaning 89% of stems were either dead or severely stunted. This is a very reasonable result as this stand of saltcedar was very thick and difficult to get into to treat so many stems were not treated very well. Once again the understory was also impacted with perennial pepperweed decreasing 95% and grasses decreasing 65%. Plot 19 was initiated in 2005 using the same volume of chemical as plot 18 with the treatment date conducted later in the fall to see if the understory is less impacted.

Four release sites were established for the biological control of saltcedar using the beetle *Diorhabda elongata deserticola*. As stated earlier in this section, Refuge staff was able to collect beetle larvae from Delta, Utah. Seven staff members spent a morning collecting larvae (the first generation of the year) and brought them back to the Refuge and released them on June 23.



Bio Tech Harris clipping stems with  
beetle larvae. (DP)



A bucketful of beetle larvae. (DP)



And a truck full of buckets of beetle larvae. (DP)

The four release sites were Johnson Bottom, L-3, Wyasket Bottom, and S1a. Each clump of saltcedar that the beetles were released in was tagged, GPS'd, and a photo taken. In addition a monitoring protocol was established which at this time consists of counting adults, the three stages of instar larvae, and egg masses during a specified time period. As damage to saltcedar begins to occur, that aspect will be added to monitoring. On August 9, Refuge Biologist Penttila checked the beetle release site at S1a to see if the last generation of adults for the year had emerged but found larvae and eggs. Two generations are expected each year as diapause is triggered by day length, so it was assumed that the August larvae was the second generation for the year. From the start of one generation to the start of the next generation that occurs in the same year is only about 30-40 days. So from August 9 to September 1, all the young seen in August should now be adults. In addition, days shorter than 14.75 hours should cause the beetles to start feeding for overwintering. On September 1, all four release sites were



Ouray National Wildlife Refuge  
2005 Saltcedar Beetle Release Sites  
beetles released 6/23/05

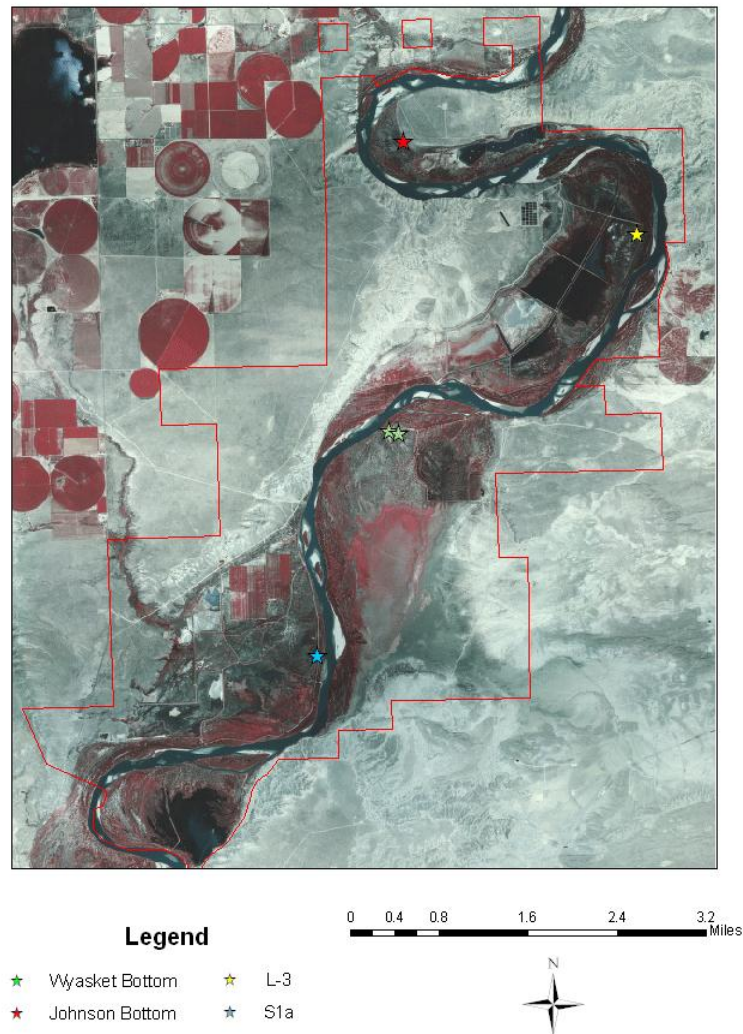


Figure 4. Saltcedar beetle release sites

monitored. It was expected that adults would be found at all sites. Instead, on September 1 only larvae were found. Does that mean that a third generation was produced or was egg laying of the second generation dragged out for a very long period of time? The fact that no adults were found on September 1 may indicate that it is the former. In any case, at least one larvae was found on every single

clump of saltcedar that was part of the initial release at S1a, Johnson, and Wyasket. Larvae were not found as consistently in L3 with several clumps with no larvae found but with one clump that was loaded. It appeared that the saltcedar that was more sheltered from wind may be less likely to have the insects disperse. S1a may be a perfect example of this; this is a very sheltered spot and many of the clumps of saltcedar had lots of larvae. Finding any larvae or adults this early in the release is considered unlikely, so the fact that we have lots of insects at all release sites bodes well for the future.

Russian olive control in 2005 focused on maintaining past treatment sites and re-tackling the south side draw off the entrance road. A total of 185 small trees were cut and stump treated all in Sheppard Bottom or the south draw.

Russian knapweed is sometimes considered the most evil of all the weeds affecting Ouray NWR. It grows in such thick patches that all other plants are virtually eliminated and so far Russian knapweed also seems to be the most difficult to treat. Extensive work was done in 2000 and 2001 to compare chemicals and rates but the work was not quite completed. Another one of the testing parameters is timing, either just before frost or soon after frost. In 2003, several of the plots were resurrected either because they were unfinished or had showed very good potential. In early frost in 2003 did not allow for some of the plots to be finished so work continued in 2004.

Plot 1 was Plateau at 8 oz/ac + Hasten treated pre frost. It was treated in 2003 and 2004 and was unsuccessful. For 2005, this plot was changed to a post frost treatment using a boom spray with Plateau at 12 oz/ac + Hasten. Plot 7 was also a pre frost test with Plateau at 8 oz/ac + S-90, thus this plot is testing the difference in surfactants from Plot 1. Treatments on plot 7 were conducted in 2004 and 2005. After one year of treatment, there was little change in the growth of Russian knapweed. A final decision will be made on the effectiveness of this plot after monitoring in 2006. Plot 12 was Roundup at 2 qt/ac + Arsenal at 2 pt/ac + S-90 treated pre frost. After two years of treatment there has been a 94% decrease in Russian knapweed. However, there is no understory in this plot. There really was not much of one at the start of testing with this plot, but what there was is now gone and nothing else has grown in. So while this mix is successful, it probably will have a significant negative impact on desirable plants. Plot 8 was Arsenal at 6 pt/ac + MSO conducted post frost. This plot showed a 92% decrease in Russian

knapweed after two years of treatment. Once again, ground cover was not highly prevalent before treatment started, but what there was has declined. This is an effective treatment but also has a negative impact on desirable plants. Plot 10 was Plateau at 8 oz/ac + Hasten treated postfrost. After two years of treatment this plot has only shown a 31% decrease of Russian knapweed. As typical with thick Russian knapweed there was not much of an understory before treatment and there still is not much of an understory after treatment. However, there is some desirable plants within the plot area so it will be monitored to see if those plants will spread. Plot 13 was Plateau at 8 oz/ac + S-90. This is again a test between surfactant types with plot 10. Plot 13 has only been treated one year but has already shown a 59% decrease in Russian knapweed. There was no understory in this plot but a nearby area may have grass drilled in during the spring of 2006 and a pass will be made through this plot. The perennial pepperweed/Russian knapweed plot 2 was treated with 12 oz/ac Plateau + Hasten in July of 2005. This treatment was very effective on the pepperweed but had no effect on Russian knapweed so this plot was spot sprayed with Escort during the summer for the remaining perennial pepperweed and boom sprayed with Plateau at 8 oz/ac + S-90 postfrost for Russian knapweed.

Treatment of the seven plots and the surrounding areas, plus continuing treatment of Wyasket pond and the old hatchery site resulted in a total of 62.6 acres of Russian knapweed treated during the fall of 2005.

In 2004, bull thistle was discovered on the Refuge. Fortunately, the infestation overall is quite small, but it is scattered over a Sheppard and Leota Bottoms. There were 12 spots located in 2004 and were mostly single plants. Five

were hand pulled. In 2005, new bull thistle was found in Leota Bottom but were patches of several plants. By the time it was found it had already gone to seed. In 2006, all the areas will be searched and hand-pulled if possible.

10a. Mosquito Control

Refuge staff continued to work cooperatively with the Uintah County Mosquito Abatement District (UCMAD). The primary concern for 2005 was the possibility for a large outbreak of West Nile Virus. The virus has made a steady national progression from east to west. Colorado had a major outbreak in 2003. Fortunately so far West Nile Virus has had a low incidence of human and horse impact. The Refuge had confirmed West Nile Virus in one mosquito sample in 2003, two mosquito pool samples in 2004 and five samples in 2005. We theorize that it is a matter of 'when', not 'if' there is a major virus outbreak in Utah and continued to take a proactive approach to soften its impact. Our proactive approach consists of training, communication, revisiting our water management regime, completing a set of guidelines to direct action as part of our IPM plan and evaluating what other pesticides could be utilized while maintaining compatibility. In addition to West Nile virus, the potential still exists

for mosquito-borne Western Equine and St. Louis Encephalitis to occur.

The Refuge continued its traditional means of mosquito control by issuing a Special Use Permit to the UCMAD. The UCMAD maintains two light traps on the refuge. Mosquitoes are collected weekly from the traps and sent in for disease pathogen testing. Mosquito larvae are randomly sampled by UCMAD and when larvae are present a larvicide is applied. The primary control method is the use of Bti (*Bacillus thuringiensis israeliensis*) mosquito larvicide applied both aerially and from the ground by ATV. In addition, two chicken sentinel flocks are also maintained by UCMAD in the county and are tested routinely for disease pathogens.

UCMAD conducted five aerial applications of Bti on May 25, May 27, June 21, July 7, and August 8, totaling 4,300 acres. Ground applications were conducted on numerous occasions from April 21 through September 6. A summary of compounds/chemicals applied, acres treated and costs associated with this program is documented in the Pesticide Use Report in Table 1. There were no applications of mosquito adulticides applied on the Ouray NWR in 2005.



**Table 1 - Pesticide Use Report 2005 - Ouray NWR**

Type of Control	Common Name of Pesticide	Primary Target Pest Species	Habitat Type	Acres Treated	Stem Treated	Total Pounds AI or AE Applied	Chemical Costs (Service Only)	Estimated Other Service Costs
Mechanical		Russian thistle, kochia	roadsides and dikes	30.51				1,297.14
Chemical	Roundup	Russian thistle, kochia	roadsides, dikes, buildings	0.29		3.16 lbs AI	27.08	128.46
Mechanical & Chemical	Escort XP	Perennial pepperweed	riparian, grassland	169.22		2.04 lbs AI	1,540.08	17,180.44
Chemical	Plateau	Russian thistle, kochia	roadsides, dikes	0.65		0.07 lbs AI	19.82	759.26
Chemical	Plateau	Russian knapweed	grasslands	60.25		7.78 lbs AI	1,399.51	14,284.55
Chemical	Plateau	Canada thistle	wetlands	0.1		0.01 lbs AI	2.73	69.07
Chemical	Arsenal + Roundup	Russian knapweed	grasslands	0.96		0.03 lbs AE + 0.16 lbs AI	7.21	400.93
Chemical & Mechanical & Cultural	Arsenal + Roundup	Saltcedar, Russian olive	wetland, riparian	41.08	67	4.04 lbs AE + 11.12 lbs AI	679.94	1,824.34
Mechanical & Chemical & Cultural	Arsenal	Saltcedar, Russian knapweed, Russian olive	wetland, riparian, grassland	67.38	118	9.98 lbs AE	1,634.33	11,725.20
Chemical	Garlon 4	Saltcedar	wetland	1.45		4.5 lbs AE	348.07	1,078.66
Chemical	Bti Vectobac 12 AS	Mosquito	wetland	4,313		38.55 lbs AI	0	300.00
Chemical	Bti Vectobac Technical Powder	Mosquito	wetland	298.41		162.25 billion ITU	0	173.56
Chemical	Habitat	Canada thistle	wetland	0.83		0.26 lbs AE	39.83	872.95
Type of Control	Common Name of Pesticide	Primary Target Pest Species	Habitat Type	Acres Treated	Stem Treated	Total Pounds AI or AE Applied	Chemical Costs (Service Only)	Estimated Other Service Costs
Chemical	Habitat	Russian thistle, kochia	roadsides & dikes	1.0		0.6 lbs AE	101.27	3,280.84
Chemical + Mech. + Cultural	Habitat	Saltcedar	wetland	59.62		4.56 lbs AE	733.83	7,809.63
Mechanical + Chemical	Habitat + Aquamaster	Saltcedar	wetland	1		1.63 lbs AE + 3.26 lbs AI	230.56	314.72
Mechanical		Bull thistle	Wetland		2		0	79.24
Biocontrol		Saltcedar	wetland	1				7,183.40
<b>Totals</b>				<b>5,046.75</b>	<b>187</b>		<b>6,764.26</b>	<b>68,762.22</b>

- a) Other Service costs include fuel, supplies and salaries to conduct treatments and test plots, monitoring, Refuge inventory, etc.
- b) Cost to Uintah County Mosquito Abatement District - \$14,347.67.
- c) Cost to Uintah County Mosquito Abatement District - \$2,385.65.

## 11. Water Rights

Ouray NWR holds water rights from the Green River for 139.06 cfs for fish and wildlife propagation and 6,185 acre-feet for irrigation, for a total of 23,452.12 acre-feet. These water rights are commingled and can be used anywhere between a point N 130 24' W 2167.8 feet from the SE Corner Section 24, T7S, R20E, SLB&M and a point E 2175 feet and S 3000 feet from the NW Corner Section 22, T8S, R20E, SLB&M. The Green River is the Refuge's primary water source, diverted through five gravity-flow inlet structures, four levee removal sites and portable pumps. The use of permanent pump stations on the Refuge is being phased out over time as prescribed under the station CCP.

Ouray NWR also holds 860 shares of Pelican Lake water. The amount of available water per share varies each year and ranges from 1.5 to 3.0 acre feet/share. This water is diverted through a gravity-flow pipeline and used to irrigate refuge croplands and supply water for impoundments in the Parker Tract, Sheppard and Leota Bottoms. Pelican Lake water use is managed by the Ouray Park Irrigation Company. A Change Application has been submitted to the Utah State Engineer, Division of Water Resources through OPIC (pending) to modify time and place of use, but will not result in an overall expansion of use of the water rights. This Change Application was still pending by the end of 2006.

“Free” water (no water rights) is also received from seeps and excess irrigation water from private agricultural operations above the Refuge and flows through the Roadside Draw. This water has elevated selenium levels and now flows freely towards the Green River through S-5 as a result of levee removal projects in S-3 and S-5.

To protect Refuge water rights, steps are being taken to better quantify water use. Calculations of water use at Ouray NWR have always been a challenge. In the past, pump and pipeline water use was easily calculated but measuring Green River gravity flow water was difficult with no flumes

in place. Estimates were derived by recording changes in staff gauge readings and accounting for evaporation. Information derived from these calculations was speculative, as there were no area/capacity tables developed for Refuge impoundments at the time and the short staff gauges in use did not adequately measure the full range of changes in water elevations.

As a first step towards improving the accuracy of water use calculations, FLO Engineering, Inc., was contracted by FWS Water Resources Division (WRD) in July 1997 to investigate elevation/area/capacity quantities for six bottomland sites on the Refuge. “The objectives of the study were to: 1) Determine the accuracy of existing topographic mapping of the bottomland sites. 2) Collect topographic survey data where the existing mapping was not sufficient to determine appropriate bottomland areas and capacities. 3) Prepare mapping for each bottomland site from the existing topographic data and collected survey data. 4) Process Elevation, Area, and Capacity information in tabular format in order to quantify water use on Ouray National Wildlife Refuge.”

The Bureau of Reclamation (BOR) under contracted with WRD, constructed Parshall flumes adjacent to gravity-flow inlets in Leota (1997), Sheppard (1997) and Woods Bottoms (1998). However, levee removal projects designed to restore natural flooding in Leota (1998), Johnson (1998) and the backside of Woods Bottoms (1997), added new complexities to water use measurements. To address this issue, full-length staff gauges were installed by Refuge staff in all impoundments and surveyed by the BOR late in 1999.

WRD personnel also developed Excel spreadsheets to aid water use calculations. A recent development that has come to light while utilizing these spreadsheets, is the apparent discrepancy between surveys conducted by the BOR and FLO Engineering (now called Tetra Tech). The BOR conducted their surveys based on USGS benchmarks but it is unclear what FLO used for control points.

This issue was examined by Tetra Tech (TT) personnel in 2003. Under USBR Contract No. 00-CA-30-0027, TT performed a static GPS survey to establish a network of horizontal and vertical coordinates throughout the entire Refuge. The network was used to update the existing survey information for all units except Wyasket. Wyasket was the only

bottomland not tied into the BOR survey during FLO's 1997 survey (it was tied into 1962 topography maps).

Existing topographic maps, elevation/area/capacity tables and cross section data developed by TT on arbitrary datums were updated to correspond with the new survey datum and submitted electronically on a CDROM (Cost \$10,950).

Under the 2003 contract, TT also conducted a topographic survey of Wyasket Pond and Lake (2000 acres). A topographic map of the entire Wyasket Bottom was completed along with updated elevation/area/capacity tables for the site. Data was submitted electronically on CDROM (Cost \$13,865).

In October 2004, TT contract data was submitted to the R-6 WRD to be developed into new spread sheets. There is a need for staff gauges not surveyed in the TT contract to be surveyed to make full use of the revised spread sheets which is still pending.

In 2001, Intermountain Environmental, Inc.(IEI), Logan, Utah was contracted by WRD (\$43,188) to install Campbell Scientific data-loggers equipped with radios to remotely monitor water levels in all Refuge impoundments. IEI installed these units in Sheppard S-1 thru S-5 and the Woods Main/Backside impoundments. Stilling wells for these structures were constructed and surveyed by the BOR prior to IEI's arrival in 2001.

This work was followed by refuge staff installing stilling wells and data-loggers at L-6 and L-8 in 2002, but there were radio communications problems at these locations. These problems were resolved in 2003 with the exception of Woods Main. Two more stilling wells were installed at the L-2 and L-4 drains in 2004. Contract maintenance work with IEI continued and they installed a repeater 2005 which has improved systems communications.

Total water use calculations may be found in the 2005 Ouray NWR Water Use Report.

## **G. WILDLIFE**

### **1. Wildlife Diversity**

The bountiful diversity of wildlife within Ouray NWR is a direct result of the various habitat types, available water and the safe haven provided by the Refuge. The Refuge has often been referred to as an oasis in the desert. Lands adjacent to the Refuge are very dry and barren.

Refuge staff have listed 237 bird species, 8 additional bird species listed as accidentals, 57 mammal species, 21 reptile, 6 amphibian species, 29 fish species, 24 butterfly species and 315 plant species occurring on the Refuge.

## 2. Endangered and/or Threatened Species

Federally endangered or threatened species that occur on the Refuge include the bald eagle, razorback sucker, Colorado pikeminnow, bonytail, humpback chub and Uintah Basin hookless cactus. Bald eagles are common in the winter. The highest number of bald eagles observed in 2005 was on February 8 with 56 eagles compared to 2004 with 45 eagles on March 8, and 2003 with a peak of only 24 eagles on February 12. The Uintah Basin hookless cactus can be found in several locations on the Refuge, mainly on gravelly, south and west facing slopes.

The southwestern willow flycatcher is listed as a Federal Endangered Species. Differentiating between the southwestern willow flycatcher and the willow flycatcher is extremely difficult. Determinations by vocalizations are not accepted by most. See section G7 for more information on willow flycatchers.

The State of Utah no longer maintains a State Threatened and Endangered Species list. Instead the State has compiled a Sensitive Species List.

## 3. Waterfowl

The General Avian Survey (GAS), which has been conducted for many years, is in the process of being overhauled to provide consistent data for monitoring, use on individual impoundments, and to estimate populations for the entire Refuge. This process started in 2004 which happened to be a very dry year and may serve as a benchmark for one of the lowest population estimates, though the fall peak for dabbling ducks was higher in 2004 than in 2005 (see Table 2). Spring dabbling duck peak use improved

in 2005 though most of the birds were in what was left of the flooded units in Leota, L6-L9 or on the Green River, but S4 was newly flooded and started having bird use. Late fall use in 2005 was almost exclusively in Sheppard bottom, especially S4 and S5. Diving duck numbers were higher in the summer than they were during either spring or fall migration. Canada goose spring migration numbers were also relatively low. Several other species besides those listed in Table 2 are routinely seen and include American wigeon, blue-winged teal, the occasional wood duck, buffleheads, ring-necked ducks, lesser scaup, common goldeneye, and common mergansers. Tundra swans are seen yearly but only a few and usually for only a week or two. The unusual waterfowl sightings of the year were canvasbacks in November in L9 and S4, snow geese in S4 and the farm fields at the end of November and beginning of December, and two greater white-fronted geese on the Green River the beginning of December.

Table 2. Peak numbers of core duck and goose species.

Peak numbers for	2004	2005
Spring dabbling ducks	3,360	5,311
Fall dabbling ducks	10,519	8,498
Mallard	3,095	3,780
Gadwall	740	2,379
Northern pintail	1,104	2,274
Green-winged teal	5,798	2,312
Cinnamon teal	319	1,324
Northern shoveler	485	510
Redhead	309	594
Ruddy duck	133	287
Canada geese	2,180	4,133



Brood production on the Refuge can be inconsistent and spotty with many units generally drying up during the summer. In 2005, it was slightly more difficult as many units were flooded with high river flows after nesting season had started and flooded out many nests. But many species rebounded and all bottoms had broods produced except Wyasket. Gadwall were by far the most numerous with 34 separate broods identified within the survey area (not extrapolated to the entire Refuge) with a total of 217 young. Also within the survey area were six mallard broods, five Canada geese, three redhead broods, four ruddy ducks, and one cinnamon teal brood. Although 2004 was a relatively dry year, 38 broods of gadwall, producing 279 young were found along with six mallard broods, five Canada geese, two redhead broods, five ruddy ducks, one blue-winged teal, one cinnamon teal and one wood duck brood.

#### 4. Marsh and Waterbirds

The secretive marsh bird survey was initiated in 2001 by David Klute, Assistant Nongame Migratory Bird Coordinator. Klute also conducted the survey in 2002, though only in Leota and many of those points went dry by the end of the survey period due to drought. The survey was revived by Refuge Staff in 2004. Data from this survey will be used by the Refuge and as part of a national database. The Leota route has 15 points and was conducted in both 2004 and 2005, though at the start of 2005 some of the points were dry. The Sheppard route has 10 points and was only conducted in 2005 due to dry conditions in 2004. In 2005, four surveys were conducted on each route instead of three. This was to answer whether American bitterns are setting up territories earlier than previously thought. However, due to dry conditions at the start of the surveys in 2005, very little habitat was available to bitterns. Primary species surveyed were the least bittern, sora, Virginia rail, and American bittern. Secondary species were red-winged blackbird, yellow-headed blackbird, marsh wren, common yellowthroat, and willow flycatcher. David's list of primary and secondary species was much longer, but most of the species dropped in 2004 were surveyed using the General Avian Survey. Results from the survey can be seen in Table 3 & 4.

Table 3: Peak number of birds detected on Leota route. NS - not surveyed.

	2001	2002	2004	2005
American bittern	9	8	13	11
Common yellowthroat	13	5	7	9
Least bittern	0	0	1	0
Marsh wren	NS	NS	22	38
Red-winged blackbird	NS	NS	19	30
Sora	1	1	3	1
Virginia rail	1	4	6	5
Willow flycatcher	0	0	0	1
Yellow-headed blackbird	NS	NS	43	49

Table 4: Peak number of birds detected on route. NS - not surveyed.

Sheppard

	2001	2005
American bittern	13	7
Common yellowthroat	5	11
Least bittern	0	0
Marsh wren	NS	10
Red-winged blackbird	NS	22
Sora	1	3
Virginia rail	0	3
Willow flycatcher	0	0
Yellow-headed blackbird	NS	34

American bitterns continue to be seen as often as heard and the Refuge has become known as a place to reliably see American bitterns. On a national scale, the number of American bitterns recorded/number of points surveyed is one of the highest in the nation.

Pied billed, eared and western grebes are all common on the Refuge during breeding season. Clark's grebes also nest on the Refuge but are not as common. All grebes were much more numerous in 2005 than in 2004 with western grebes reaching well over 500 during August and September. Horned grebes were observed for a short time in June in S4. Production by grebes was also much higher in 2005. Eighteen pied-billed grebe broods were seen within the survey area along with 2 Clark's grebe broods, 7 eared grebe broods and an explosion of western grebe broods totaling 33 broods producing a total of 53 young. Broods were found in all bottoms except Wyasket. Pied-billed had a slight preference for Leota but many were also found in Sheppard bottom while eared grebes preferred Sheppard. Western grebes were found in all four bottoms but only one brood was found in Sheppard; a vast majority were found in Leota. In 2004, nineteen pied-billed grebe broods, one Clark's grebe brood, one eared grebe brood, and only one western grebe young were seen.

American white pelicans, double-crested cormorants, great blue herons, snowy egrets, white-faced ibis, and American coots are all also common during the summer. Pelican use in the spring was very low, possibly due to the dry conditions but peaked at over 850 in September. Great egrets, cattle egrets, black-crowned night herons, and sandhill cranes can also be frequently found on the Refuge but in fewer numbers. For the third year in a row, a green heron was spotted. In 2003, two were seen most often in the L-10 area and later included young which hopefully means they nested. In 2004, the only sighting was while on the Green River near a rookery. In 2005, one green heron was seen during September in S5.



Black-crowned night heron taken by  
Refuge visitor Linda.

Although high river flows and the associated flooding likely wiped out many American coot nests, they rebounded very well producing over 95 broods and 245 young within the survey area. In 2004, which was a dry year, only 19 broods were found totaling 45 young.

Several rookeries are present on the Refuge. Although no formal nesting counts take place at each rookery, some are easily seen from the General Avian Survey routes. The island on the river east of Leota Bottom (informally called Chapman Island) has numerous nests but early in the season only had 1 great blue heron sitting in the nest. The other colony on the Green River, just south of the Chapman Island right across the river from the L5/L7 dike had over 80 nests visible with over 40 great blue herons and 3-4 double-crested cormorants sitting in nests. Once leaf out on trees begins, both these colonies become too difficult to see. The colony in L7, while successful for great blue herons in 2004, was not even used in 2005. The colony in Woods Back started the year with two trees, one tree with 19 nests in it, three with great blue herons sitting and thirteen with cormorants while the other tree had 47 nests in it with only cormorants sitting in nests. In mid-June, young were becoming visible in the Woods Back nests but before a count could be conducted the first week of July, both trees blew down. It's likely that some if not many young survived as many birds (many looking like young) were standing among the ample amount of down trees. By mid-July, great blue herons had started building new nests ending up with 5 nests with a total of 10 young

seen. Woods Main started the year with 4 nests total, 3 great blue heron and 1 double-crested cormorant but built up during May and June eventually using 10 trees with a total of 32 great blue heron nests and 10 cormorant nests. An estimate of young produced in Woods Main was 43 great blue herons and 17 double crested cormorants.

## 5. Shorebirds, Gulls, Terns and Allied Species

The first shorebirds started arriving in March. Spring peak was the first week of May which is a bit later than normal. Peak numbers reached 1,410 compared to only 450 in 2004. Better water conditions in 2005 compared to 2004 also increased overall bird numbers with American avocets reaching over 300 birds and Wilson's phalaropes over 400 in May, black-necked stilts reached 150 in August along with lesser yellowlegs reaching over 180 and dowitchers peaking at over 970 in September. L8 and L9 were the attractive units in the spring but late summer and fall use was mainly in S4 and especially in S5. High river flows may have been hard on shorebird production but four young American avocets, three young black-necked stilts and two young spotted sandpipers were seen during the summer. The fall peak was 1,210 the first week of September. A total 17 confirmed species of shorebirds were observed in 2005 with one other species still questionable. Black-bellied plovers were seen a couple of times during the year. Red-necked phalaropes were seen one week during September. A long billed curlew was seen in July. Wilson's snipe, which were not even seen in 2004 were all over Leota August through November. The bird in question is semipalmated sandpipers. The purchase of a good camera will hopefully help solve that mystery.

Ring-billed gulls are common on the Refuge. Franklin's gulls were seen a few times and Bonaparte's gulls were seen twice. Forster's terns reached a high of 100 birds in June, but only one young was seen. Black terns were not as common as Forster's and only two young were seen. Tern nests are very sensitive to sudden flooding so many nests may have been lost this year. Two Caspian terns were seen in August.

## 6. Raptors

Red-tailed hawks, northern harriers, and American kestrels are common throughout the year. Turkey vultures are readily observed during the summer. During the winter, bald eagles are frequently seen (see Section

G-2 for more details on bald eagles) and an occasional rough-legged hawk will be spotted. Golden eagles and great-horned owls are seen occasionally throughout the year. There is a known nesting area for great-horned owls and young can often be seen in the area during the spring and summer. Peregrine falcons were seen on three occasions with two birds seen in September. One Cooper's hawk and one prairie falcon were spotted on two occasions, while an osprey, a sharp-shinned hawk, and a Swainson's hawk were all seen once during 2005.

#### 7. Other Migratory Birds

As previously mentioned, the southwestern willow flycatcher is a Federally Endangered Species. It is unlikely that the willow flycatcher on the Refuge is the southwestern, but that has not been verified one way or another. The yellow-billed cuckoo is a Federal Candidate Species and a Utah Partners in Flight Priority Species. The Refuge will continue to play a vital role in the conservation of these and many other Species of Concern that are riparian dependent.

The Utah Division of Wildlife Resources (UDWR) established a point count route on the Refuge in 1992. That route was surveyed by UDWR staff again in 2005. Due to flooding it was only conducted two of the five survey periods, the first period and the last period. A total of 39 species were detected which is low but expected with only two survey periods. New records for the database were snowy egret and pied-billed grebe, both common birds, and 9 gray flycatchers. Gray flycatchers could be present on the Refuge, but since they have never been recorded in 13 years of point counts, one has to wonder if maybe they were mistaken for another species. Other unusual species include broad-tailed hummingbirds for the second year in a row, blue grosbeak, and blue-gray gnatcatchers.

UDWR has also conducted playback surveys for yellow-billed cuckoos for the last six years. Unfortunately, no cuckoos have been detected on the Refuge for the last three years. One was heard repeatedly upriver of the Refuge in 2004 and 2005.

The Refuge hosted the Ouray NWR/Green River Christmas Bird Count (CBC) for the second year. After having only 3 official counters for the 2004 CBC, extra effort was put into recruiting counters for the 2005 CBC. Also the 2005 count was moved to the first Saturday of the CBC period instead of being the day after the nearby Dinosaur NM/Jensen CBC.



Originally it was thought that we would get more counters from out of town if we had two CBC counts back to back in this area, but that didn't work. To help boost recruitment even more a friendly contest between Fish Springs NWR CBC and Ouray CBC was started to see which CBC would count the most species. A total of 15 counters participated in the CBC held December 17. Unfortunately we had been experiencing a very cold snap and all the impoundments and much of the river was frozen pushing out almost all the waterfowl. But a total of 43 species and 5,763 individual birds were counted compared to just 37 species and 3,306 individual birds counted in 2004. The most unusual species was a red-naped sapsucker. Incidentally, Fish Springs won the contest with 45 species recorded.

#### 8. Game Mammals

Mule deer, pronghorn and Rocky Mountain elk occur on the Refuge. All three species co-exist and often utilize the same habitat types. Elk densities have been steadily increasing and are starting to wreak havoc with fences, irrigation sprinklers and HQ landscaping. Neighboring land owners have taken issue with the increasing number of elk and have requested depredation compensation from the State. The Refuge has also become known as a place to come to see elk somewhat easily and to see large mule deer bucks. Of the three big game species, only mule deer are hunted on the Refuge. Cottontail rabbits are the only other game mammal which occur on the Refuge.

#### 7. Other Resident Wildlife

Wild turkeys continue to be a more common sight on the Refuge. They have now been seen throughout the Refuge. Prior to 2004, turkey broods were a rare sighting. Now several broods have been seen each year in 2004 and 2005, mostly in Leota.

River otters are common on the Refuge and are frequently seen, especially in Leota.

An unidentified caterpillar consumed large amounts of cattail in Leota Bottom in 2004. Several caterpillars were sent to an entomologist at Utah State University who then forced a pupation to the moth phase. Still unable to identify the insect, the moths were sent on to experts at the

Smithsonian Institute. As of yet, that caterpillar still has not been identified.

## 12. Wildlife Propagation and Stocking

The only propagation and stocking of wildlife which occurs on the Refuge is that which is conducted by the Colorado River Fish Recovery Program. In 2005, no stocking occurred in any of the impoundments. Brood stock and extra razorback suckers from the hatchery were released in the Green River.

## 15. Animal Control

Beaver will occasionally interfere with water control structures. But in 2005, no beavers were removed.

## 17. Disease Prevention and Control

Avian botulism is known to exist on the Refuge. The two areas on the Refuge which are known to be hot spots for die offs are Wyasket Lake and L-5. Although 2005 was a wet year, avian botulism was not detected.

West Nile Virus was confirmed on the Refuge by the Uintah County Mosquito Abatement District (to read more on mosquito control see Section F10a). Five pool samples of *Culex spp.* tested positive in 2005, one on July 22, two on August 5, one on August 11 and one on August 18. But fortunately, West Nile Virus human and horse confirmed cases were relatively low for the area.

# H. PUBLIC USE

## 1. General

Traffic counter readings totaled 7927. The traffic counters are located at the entrance to the auto tour route and on the east side of the river at Woods Bottom. The traffic counter readings include employee traffic, but do not record all visitor use due to their location. Consideration is being given to relocation of the two traffic counters and adding one additional

counter at Johnson Bottom. The permitted public use activities include wildlife observation, hunting, fishing, photography, and environmental education.

## 2. Outdoor Classrooms - Students

Due to reduced staffing and funding, the Refuge has reduced the number of staff assisted outdoor classrooms. Teachers are encouraged to continue making use of the Refuge but without the assistance of Refuge staff. The majority of these school groups visit in April and May for end of year school field trips.

## 5. Interpretive Tour Routes

The self-guided auto tour route through Sheppard Bottom and Leota Bluff will soon receive new interpretive stand alone signs which replaced the numbered signs that required the use of a leaflet. The route continues to be a favorite route among visitors who enjoy wildlife observation. The route provides year round access for bird watching in the spring, summer and fall as well as big game watching in the fall and winter.

## 6. Interpretive Exhibits and Demonstrations

Our annual Open House was held May 14 and coincide with International Migratory Bird Day. Refuge staff, volunteers and staff from other Refuges, Hatcheries and other agencies assisted with the event. Other participating agencies included Uintah County Mosquito Abatement District, Ouray NFH, NRCS, Salt Lake City Ecological Services, and the U.S. Forest Service. The majority of the participants are Cub Scouts who are given the opportunity to earn the Ouray Wildlife patch by participating in 10 of 15 demonstrations.



Building bird houses at the annual Open House. (DA)

Open House station. Learning to throw atlatls. (DA)



## 8. Hunting

The hunting of mule deer, pheasants, ducks and geese is allowed on the Refuge. The areas which are open to hunting are: Leota Bottom for ducks, geese, deer and pheasant, and Johnson and Wyasket Bottoms for deer and pheasant hunting.

### Deer Hunting

The Refuge allows the hunting of deer with rifles, muzzle loaders, and bows and arrows. The general archery season was open from August 20 - September 6 and the extended archery season continued on through November 30 and the antlerless only hunt from Dec.1 - 15th.

The muzzle loader season was open from September 28 - October 6. The general deer rifle season was open from October 22 - 31. The overall number of deer hunters on the refuge remains relatively low, although interest in the extended archery season is increasing in the Bull Durham area due to adjacent landowners planting alfalfa .

### Pheasant Hunting

The pheasant population remains low and perhaps due to poor chick recruitment. The few birds harvested were primarily adult birds. An estimated 45 hunters participated in the 2005 pheasant season which occurred from November 5 through December 4. The birds non-native origin prevent refuge staff from further investigation.

### Waterfowl Hunting

The waterfowl hunting season opened for ducks on October 1 and closed January 14. The goose season was split from October 1- December 1 and December 17 through January 29. Abundant water in Leota provided ample opportunity for hunters and waterfowl were distributed throughout the Refuge.

The Refuge was open for the youth waterfowl hunt held on September 24. Only four hunting parties of ten young hunters and their adult guardians took advantage of the hunting opportunity.

## 9. Fishing

Fishing within Refuge boundaries on the Green River is permitted. Channel catfish are the primary sought after species although Northern pike and small mouth bass populations continue to steadily increase. The number of Refuge fisherman is unknown, but we estimate it at 100 fisherman.

## 11. Wildlife Observations

Wildlife observation continues to be the number one visitor activity on the Refuge. Common wildlife observation attractions are migratory birds, trophy mule deer,

bugling elk, and bald eagles. Wildlife viewing areas such as the farm field and moist soil units on the Refuge provide great wildlife viewing opportunities.

The Refuge continues to gain popularity as a great bird watching area. Bird watchers from beyond the local area are becoming more common.

#### 16. Other Non-Wildlife Oriented Recreation

Bicycling, hiking, and horseback riding are allowed on the Refuge tour route and levee roads. Canoeing and rafting are allowed on the river. Although, these activities are commonly conducted as a means to view wildlife.

#### 17. Law Enforcement

No violation notices were issued and four incidents were recorded. The four incidents consisted of: three off road driving, one livestock trespass, one poaching case, and one burglary - forcible entry. The poaching case occurred on January 06, 2005 in Sheppard Bottom (S2) as discovered by RO Alonso. The remains of a buck mule deer indicated the animal had been shot through the shoulder and the head removed. Heavy snow and insufficient evidence precluded solving the crime.



Poaching  
incident of a  
mule deer in  
Sheppard  
Bottom. (DA)



The burglary and forcible entry of the Refuge office and shop was discovered on 12/29/05 by RO Alonso. Forcible entry of the Office was gained through a window. Numerous items were stolen (binoculars, spotting scopes, tools, cameras, etc...). The estimated value of the items stolen totaled \$6,322.00 and the matter was reported to the local Sheriff's Office. See Refuge Law Enforcement file for additional information.

Refuge Officers Alonso and Schaad traveled to Anahuac, TX to assist with hurricane Rita relief effort Sept 26-Oct 6.

#### 18. Cooperating Associations

Cooperating associations exist with Utah State Parks Field House of Natural History, Utah Department of Transportation, Jensen Visitor Center and the Uintah County Cooperative Weed Management Area. Both the Field House and the Jensen Visitor Center disseminate Refuge literature and information. The Refuge cooperates in the Weed Management Area through participation in the steering committee, sharing of information and knowledge of invasive weed control and providing assistance with weed control projects which lie upstream of the refuge.

### **EQUIPMENT AND FACILITIES**

#### 2. Rehabilitation

The station received deferred maintenance funds in FY-05 to rehabilitate the shop lighting, heating system, office and restroom (\$19K) and also to rehabilitate the shop ventilation system (welding and vehicle exhaust fumes, \$22K). This project was still pending at year end.

Refuge maintenance staff hauled fill material from the pit north of L8 and spread this material to restore slopes along the protective levee between S3 and S5 (asset #10035928) in December. Approximately one half mile of this levee had become badly eroded due to wind and wave action. This work would not have been possible without the use of dump trucks borrowed from Alamosa/Monte Vista, Seedskadee and Browns Park NWRs. Costs were approximately \$7,800 for labor and \$13,845 in fuel.



Beginnings of S-5 dike repair and finished slope. (DA)



A replacement concrete wash pad was formed and poured by refuge staff in June. They also replaced concrete pads for dumpsters and propane tanks in October.

### 3. Major Maintenance

The \$72.6K in annual maintenance funds (MMS) was spent primarily on vehicle, equipment, buildings/facilities maintenance and fuel. These costs were captured in the station equipment maintenance log.

Refuge maintenance and YCC staff replaced approximately one mile of boundary fence adjacent to the North Roadside Draw in June. This section of fence was in poor condition and required replacement due to age and impacts by our resident elk herd.

Refuge maintenance mowed woody vegetation in all levee removal sites in September to reduce siltation and maintain the functionality of these sites.

### 4. Equipment Utilization and Replacement

A 2005 4x4 Chevy Tahoe SUV(6,800 GVWR, 8 cylinder, E85) was purchased through GSA with 1262 funds (\$29,081.94) and was received on April 28, 2005. This vehicle replaced a 1998 Ford Expedition.

A single axle utility/flatbed trailer (2,990 GVWR) was purchased from Big Bubba's Trailer Sales and received on September 20, 2005 at a cost of \$1,191.00. This trailer will be used to accommodate a portable welder, cutting torch, tool boxes and other related supplies.

The station radio system was funded for replacement in FY-05 (\$85K, 1262, DM) to convert from analog to digital. This project was coordinated through the FWS Branch of Communication Technology in Lakewood, CO and was still pending at years end.

The regional tree spade (attached to a 2000 Freightliner diesel truck, 2200 GVWR) was transferred to the Ouray NWR from Lacreek NWR on June 17, 2005.

The station received \$12K in equipment rental funds in FY-05. These funds were used to contract a RC100 compact track loader with Fecon bull

hog shredder and operator to remove older growth salt cedar (4-6" diameter). The contract was awarded to Randy Roper from Grand Junction, Colorado. The job was completed between April 8 - 20 (80 hours). See page 27 for picture. This machine proved to very effective and the station is considering acquisition of similar equipment for future use.

6. Computer Systems

Two new Dell desktop computers were purchased and received on 09/12/05. These PCs will be assigned to the Project Leader and Deputy Refuge Manager.

**J. OTHER ITEMS**

3. Items of Interest

**Travel/Training/Other:**

The First Annual Ouray NWR Christmas Bird Count was held on Jan 2, 2005

RB Penttila attended the Weed Conference in Roosevelt sponsored by the Uintah Basin Cooperative Weed Management Area January 18 - 19.

PL Alonso attended Annual Law Enforcement In-Service in Marana, AZ January 26-31, 2005.

RB Penttila attended a Uintah Basin Cooperative Weed Management Area meeting in Vernal on Feb. 7.

DRM Schaad attended Annual Law Enforcement In-Service in Marana, AZ, February 1 - 6.

PL Alonso attended the Annual Uintah Basin Water Conference, February 8-9.

PL Alonso attended the R6 Planning Team Meeting in Denver, CO on Feb 28-March 2. (Discussion centered around Regional Workforce Planning and Position Management).

RB Penttila attended a Uintah Basin Cooperative Weed Management Area meeting in Vernal on March 2.

Refuge staff attended the Uinta Basin Ducks Unlimited Banquet in Vernal, UT March 12.

DRM Schaad assisted with developing Operational Standards for the National Bison Range Annual Operation Plan in April.

DRM Schaad was assigned to an interim supervision detail of administrative staff at Brown's Park NWR for 3 months starting in April.

PL Alonso and MM Steve Breakfield attended SAMMS training at the Elk Refuge in Jackson, WY on April 11-13.

RB Penttila attended a Uintah Basin Interagency GIS meeting in Vernal on April 20.

PL Alonso attended the Region 6 Refuge Project Leaders meeting in Rapid City, SD. PL Alonso presented a power point presentation on recent refuge accomplishments (April 25-29).

PL Alonso and DRM Schaad met with Ouray Hatchery staff for a coordination meeting on May 12, 2005.

Refuge Staff met with Dr. Leigh Fredrickson and Dr. Mickey Heitmeyer in preparation of the Floodplain Study on May 16-19.

Fire Refresher Training attended by PL Alonso, DRM Schaad, RB Penttila, and MM Breakfield on May 23, 2005

RB Penttila hosted a Weed Inventory Training Workshop at the Refuge from May 31 - June 2. The workshop was led by Dr. Steve Dewey, USU - Logan, who designed the weed inventory method. The workshop was attended by Refuge seasonal staff, County and Extension employees from Uintah and Duchesne Counties, and the Ute Tribe.



Learning compass use in weed inventory training. (DP)

PL Alonso traveled to Grand Jct. to inspect CRWMA easements on June 2-3.

RB Penttila participated in the Utah Wildlife and River's Festival by co-hosting the 100 Bird Tour on Ouray NWR and other areas within the County on June 10 and 11th.

PL Alonso traveled to Homer, Alaska to attend the Promises Implementation Team Meeting as Region 6 Representative on June 7-12.

RB Penttila, MW Driscoll and several seasonals traveled to Delta, UT collect tamarisk leaf eating beetles to release on the Refuge June 22-23.

PL Alonso and DRM Schaad attend LE Requalification in Lander, WY on July 25-26.

PL Alonso and DRM Schaad traveled to Denver, CO to attend RAPP training on August 24-25.

PL Alonso, DRM Schaad, and RB Penttila attended EEO training in Grand Junction, CO on Sept. 8.

PL Alonso and DRM Schaad traveled to Anahuac, TX to assist with hurricane Rita relief effort Sept 26- Oct 6.

MW Driscoll traveled to the Jackson, MS area to assist with hurricane Katrina relief from September 18 - October 19.

RB Penttila attended a Audubon Society sponsored planning meeting for a bird trail map for Eastern Utah in Vernal Nov. 3.

The Second Annual Christmas Bird Count (CBC) was held at the beginning of the CBC count period on December 17 with a much better turnout than the first count.

#### 4. Credits

This document was prepared as a cooperative effort by all refuge staff. Photo credits are as follows:

Dan Alonso	DA	Steve Breakfield	SB
Dan Schaad	DS	Diane Penttila	DP